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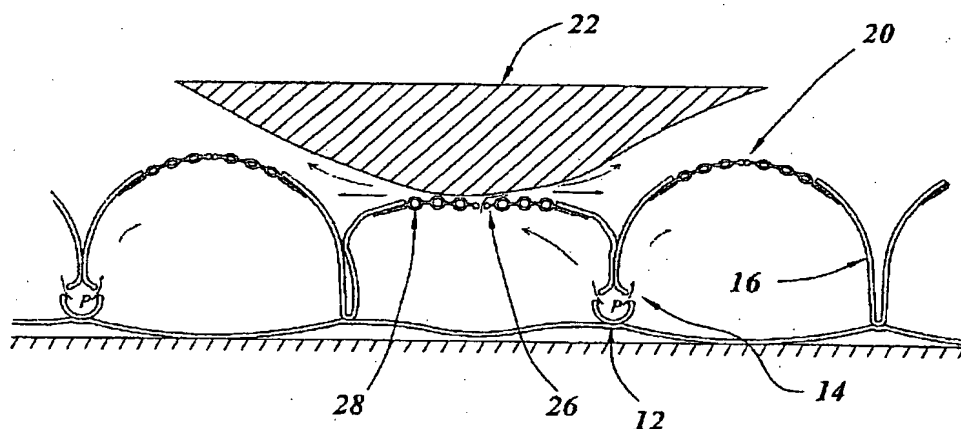
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(54) Title: SMART DECUBITUS MAT



(57) Abstract: A decubitus mat includes a plurality of individual cells (16) which are pressurized by air from an air supply (10) through air supply lines (12) and metering orifices (14). A polymer sensor/vent structure (20) is mounted on a top surface of each cell to be contacted by a body (22) resting on the mat. The sensor/vent structure defines a plurality of polymer-filled channels (28) and a vent valve (26) which is biased to a closed position. As the body heats the polymer, it undergoes a phase change and expands causing biasing forces (30) which bias the vent valve to open. When the vent valve opens, the air in the cell is released, providing an air flow to remove pooled moisture under the body. The vented cell collapses, transferring support to adjoining cells until it no longer contacts the body. Once removed from the body, the air flow in the cell cools the polymer, closing the vent, allowing the cell to re-pressurize. The polymer is selected such that the cells slightly over and under-deflate in each cycle, creating a massaging action.

WO 2004/037149 A1